* =mandatory field)

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- **Dataset_Info**:*
  - Dataset_ID*: KEO_145E_32N_Sep2008_Sep2009
  - **Submission_Dates**:*
    - Initial_Submission: 20100914 (YYYYMMDD)
    - Revised_Submission: (YYYYMMDD)
- **Cruise_Info**:*
  - **Experiment**:
    - Experiment_Name*:
    - **Cruise**:**(-)**
      - Cruise_ID: (EXPOCODE)
      - Section: (Leg)
      - **Geographical_Coverage**:*
        - Geographical_Region:
        - **Bounds**:
          - Westernmost_Longitude:
            Enter decimal fractions of degrees:
            or Degrees, Minutes, Seconds:
          - Easternmost_Longitude:
            Enter decimal fractions of degrees: +144.63 (+ = E, - = W)
            or Degrees, Minutes, Seconds:
          - Northernmost_Latitude:
            Enter decimal fractions of degrees:+ 32.47 (+ = E, - = W)
          - Southernmost_Latitude:
            Enter decimal fractions of degrees:
      - **Temporal_Coverage**:
        - Start_Date: 20080913 (YYYYMMDD)
        - End_Date: 20090904 (YYYYMMDD)
  - **Vessel**:* Mooring platform
    - Vessel_Name:
    - Vessel_ID:
    - Country:
    - Vessel_Owner:
- **Variables_Info**:*
  - **Variable**:
    - Variable_Name and Description*:
- xCO_2 SW (wet) (umol/mol) - Mole fraction of CO_2 in air in equilibrium with the seawater at sea surface temperature and measured humidity.
- CO2 SW QF – Quality Flag for xCO_2 SW (wet).
- H_2O SW (mmol/mol) - Mole fraction of H_2O in air from equilibrator .
- xCO_2 Air (wet) (umol/mol) - Mole fraction of CO_2 in air from airblock, 4 feet above the sea surface at measured humidity.
- CO2 Air QF – Quality Flag for xCO_2 Air (wet)
- H_2O Air (mmol/mol) - Mole fraction of H_2O in air from airblock, 4 feet above the sea surface.

- Licor Atm Pressure (hPa) – Atmospheric pressure at the airblock, 4 feet above the sea surface
- Licor Temp (C) – Temperature of the Infrared Licor 820 in degrees Celsius
- % O_2 - The percent oxygen of the surface seawater divided by the percent oxygen of the atmosphere at 4 feet above the sea surface. Disclaimer: The oxygen measurement is made in the equilibrated air. We have found that the oxygen does not come to complete equilibrium so any rapid changes in oxygen do not get properly captured using this system. Therefore, we tend to use the oxygen data only as a qualitative sense of the biology. It is not a quantitative measure.
- SST (C) - Sea Surface Temperature collected by NOAA/PMEL/KEO. provide internally recorded SST data at 10 minute resolution. The sea surface temperature collected during the equilibration period is reported in this dataset. NOAA/PMEL/KEO advises to check the KEO site at the time of use for the most accurate data available.
- Salinity - Sea Surface Salinity collected by NOAA/PMEL/KEO. KEO records conductivity data at 10 minute intervals and then computes hourly averaged salinity during post-processing. The salinity reported during the equilibration period is reported in this dataset. NOAA/PMEL/KEO advises to check the KEO site at the time of use for the most accurate data available.
- xCO_2 SW (dry) (umol/mol) – Mole fraction of CO_2 in air in equilibrium with the seawater at sea surface temperature (dry air).
- xCO_2 Air (dry) (umol/mol) – Mole fraction of CO_2 in air at the airblock, 4 feet above the sea surface (dry air).
- fCO_2 SW (sat) uatm – Fugacity of CO_2 in air in equilibrium with the seawater at sea surface temperature (100% humidity). Since the measurements are taken at the sea surface, warming calculations are not necessary.
- fCO_2 Air (sat) uatm – Fugacity of CO_2 in air at the airblock, 4 feet above the sea surface (100% humidity).
- $dfCO_2$ – Difference of the fugacity of the CO_2 in seawater and the fugacity of the CO_2 in air (fCO_2 SW - fCO_2 Air).

- **Method_Description**:*
  - **Equilibrator_Design**:
    - Equilibrator_Type: (show pick list) Bubble Equilibrator
    - Equilibrator_Volume: (L) N/A
    - Water_Flow_Rate: (L/min) N/A
    - Headspace_Gas_Flow_Rate: (L/min) ~600 cc/min
    - Vented: (show pick list) Yes
  - Measurement_Method: Absolute, non-dispersive infrared (NDIR) gas analyzer
  - Manufacturer_of_Calibration_Gas: NOAA Earth System Research Laboratory (ESRL)
  - **CO_2_Sensors**:
    - **CO_2_Sensor**:
      - Manufacturer: Licor
      - Model: Environmental_Control: LI-820
      - Resolution: 0.01 ppm
      - Uncertainty: < 2.5% of reading with 14 cm bench (stated) <1.5 ppm determined in lab
      - CO_2_Sensor_Calibration: (For each calibration gas, document traceability to an internationally recognized scale, including date and place of last calibration. Include uncertainty of assigned value.)

        At the beginning of each sample, the instrument self-calibrates using a zero and high standard. The zero standard is generated by cycling a small amount of air through a soda lime chamber. The high standard is from a cylinder of calibrated standard reference gas, 465.09 umol/mol, from ESRL. ESRL

standards are traceable to WMO x93 scale with a stated reproducibility of 0.06 micromole/mole.

- **Other_Sensors**: Oxygen Sensor
  - Manufacturer: Maxtec
  - Model: Max-250
  - Resolution: 0.01 %
  - Uncert-ainty: ± 2.0% Full Scale over operating temperature range
    ± 1.0% Full Scale @ constant temperature and pressure
  - Calibration: (For each sensor of pressure, temperature, and salinity, document traceability to an internationally recognized scale, including date and place of last calibration.)
    Factory calibrated before purchase. Recalibrated to sea level atmospheric air every 7 days.

- **Other_Sensors**: Humidity Sensor
  - Manufacturer: Sensirion
  - Model: SHT71
  - Resolution: 0.01 %
  - Uncertainty: Measurement range: 0-100% RH
    Absolute. RH accuracy: +/- 3% RH (20-80% RH)
    Repeatability RH: +/- 0.1% RH
  - Calibration: (For each sensor of pressure, temperature, and salinity, document traceability to an internationally recognized scale, including date and place of last calibration.)
    Factory calibrated before purchase.

- Method_References: (Publication(s) describing method)

Sabine, C. (2005): High-resolution ocean and atmosphere pCO_2 time-series measurements. The State of the Ocean and the Ocean Observing System for Climate, Annual Report, Fiscal Year 2004, NOAA/OGP/Office of Climate Observation, Section 3.32a, 246–253.

- Additional Information

- All measurements are at sea surface temperature and atmospheric pressure.

- During the equilibration cycle, a closed loop of air equilibrates with seawater for 10 minutes. Once the equilibration period is complete, the pump stops and the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure. Measurements are recorded for 30 seconds at 2 hertz and then averaged.

- During the air cycle, fresh air is pumped through the detector for 1 minute. Once the pump stops, the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure. Measurements are recorded for 30 seconds at 2 hertz and then averaged.

- The gas streams for both the air cycle and equilibrator cycle are partially dried before entering the detector. The values listed as wet xCO_2 generally have relative humidity levels ranging from 40 to 80 percent. The humidity levels increase over the course of a deployment.

- Sampling occurs every 3 hours. The infrared detector is calibrated at the beginning of every sampling period. Averaged data and standard deviations for each measurement are transmitted back daily.

- To calculate the dry measurements, the water mole fraction in the Licor detector must be known. A relative humidity sensor is located immediately downstream of the detector.

- As part of the QC process, each data set is compared with the Marine Boundary Layer (MBL) data from GlobalView-CO_2. The data from this deployment, September 2008 to September 2009, were 1.90 ± 1.70 umol/mol on average of the MBL data and therefore no correction was applied.

GLOBALVIEW-CO_2: Cooperative Atmospheric Data Integration Project - Carbon Dioxide. CD-ROM, NOAA ESRL, Boulder, Colorado [Also available on Internet via anonymous FTP to ftp.cmdl.noaa.gov, Path: ccg/co2/GLOBALVIEW], 2010

-During the QC process, an adjustment to the Licor pressure is also made based on each sensor's bias to barometric pressure as measured in the lab. For this system, the Licor pressure was adjusted by +0.1 kPa.

- No data = -9.999 or -999

- Data_set_References: (Publication(s) describing data set) None

- Citation: (How to cite this data set) Sabine, C. 2009. High-resolution ocean and atmosphere pCO2 time-series measurements from mooring KEO.
- **Data_Set_Link**:
  - URL*:http://www.pmel.noaa.gov/co2/moorings/keo/keo_main.htm
  - Label*:PMEL CO2 Group - KEO mooring
  - Link_Note: (Optional instructions or remarks)**(m s t)**

Quality Flags definitions:

2 = Acceptable measurement;
3 = Questionable measurement;
4 = Bad measurement
5 = Not reported;
9 = Sample not drown for this measurement from this bottle.

Quality Flag Log for this dataset.

Date	Measurement	Value (Dry)	Flag	Comments
10/1/2008 0:17	xCO2_SW	541.4522804	4	200 ppm increase in CO2sw measurement
10/5/2008 9:17	xCO2_SW	371.2277402	4	CO2 StDev in Equil pump on high and O2 saturation plummets
10/25/2008 6:17	xCO2_SW	412.3082844	4	CO2 StDev in Equil pump on high and O2 saturation plummets
11/11/2008 15:17	xCO2_SW	351.9853641	3	likely bad CO2 sw due to change in equil pump pressure
11/11/2008 18:17	xCO2_SW	351.7796887	3	likely bad CO2 sw due to change in equil pump pressure
11/11/2008 21:17	xCO2_SW	353.8448233	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 0:17	xCO2_SW	362.5218516	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 3:17	xCO2_SW	367.2754634	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 6:17	xCO2_SW	356.7906635	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 9:17	xCO2_SW	352.6238984	3	likely bad CO2 sw due to change in equil pump pressure

11/12/2008 12:17	xCO2_SW	356.0265754	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 15:17	xCO2_SW	359.938066	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 18:17	xCO2_SW	369.6525144	3	likely bad CO2 sw due to change in equil pump pressure
11/12/2008 21:17	xCO2_SW	369.1069239	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 0:17	xCO2_SW	371.0309076	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 3:17	xCO2_SW	371.9367928	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 6:17	xCO2_SW	372.1213975	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 9:17	xCO2_SW	364.9334411	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 12:17	xCO2_SW	375.6025031	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 15:17	xCO2_SW	368.9280142	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 18:17	xCO2_SW	369.123257	3	likely bad CO2 sw due to change in equil pump pressure
11/13/2008 21:17	xCO2_SW	365.0662635	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 0:17	xCO2_SW	362.0483246	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 3:17	xCO2_SW	363.8436617	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 6:17	xCO2_SW	357.4901129	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 9:17	xCO2_SW	355.8325146	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 12:17	xCO2_SW	351.2055858	3	likely bad CO2 sw due to change in equil pump pressure
11/14/2008 15:17	xCO2_SW	351.4850801	3	likely bad CO2 sw due to change in equil pump pressure
12/5/2008 12:17	xCO2_SW	332.4017114	3	likely bad CO2 sw due to change in equil pump pressure
12/15/2008 3:17	xCO2_SW	358.8764229	3	likely bad CO2 sw due to change in equil pump pressure
12/15/2008 6:17	xCO2_SW	348.1912832	3	likely bad CO2 sw due to change in equil pump pressure
12/15/2008 9:17	xCO2_SW	366.995242	3	likely bad CO2 sw due to change in equil pump pressure
12/15/2008 12:17	xCO2_SW	359.6774278	3	likely bad CO2 sw due to change in equil pump pressure
12/16/2008 0:17	xCO2_SW	345.998844	3	likely bad CO2 sw due to change in equil pump pressure
12/16/2008 3:17	xCO2_SW	349.0560793	3	likely bad CO2 sw due to change in equil pump pressure
12/16/2008 6:17	xCO2_SW	353.5371765	3	likely bad CO2 sw due to change in equil pump pressure
12/16/2008 9:17	xCO2_SW	350.2276259	3	likely bad CO2 sw due to change in equil pump pressure
12/19/2008 18:17	xCO2_SW	357.6180354	4	likely bad CO2 sw due to change in equil pump pressure
1/24/2009 12:17	xCO2_Air	395.2808348	3	CO2 data submitted was adjusted by - 5 ppm b/c span calibration was off as predicted by change in Licor temperature

1/24/2009 12:17	xCO2_SW	327.7817007	3	CO2 data submitted was adjusted by - 5 ppm b/c span calibration was off as predicted by change in Licor temperature
2/25/2009 15:17	xCO2_SW	340.0304539	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
2/25/2009 15:17	xCO2_Air	401.8209224	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
2/25/2009 18:17	xCO2_SW	337.9311173	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
2/25/2009 18:17	xCO2_Air	397.7863624	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
2/25/2009 21:17	xCO2_SW	335.1922833	4	Licor coefficients and calibrations in diagnostics are off
2/25/2009 21:17	xCO2_Air	396.7241302	4	Licor coefficients and calibrations in diagnostics are off
2/26/2009 0:17	xCO2_Air	394.4559467	3	CO2 data submitted was adjusted by + 4 ppm b/c span calibration was off as predicted by change in Licor temperature
2/26/2009 0:17	xCO2_SW	336.4318694	3	CO2 data submitted was adjusted by + 4 ppm b/c span calibration was off as predicted by change in Licor temperature
4/12/2009 21:17	xCO2_SW	333.7812089	3	likely bad CO2 sw due to change in equil pump pressure
4/13/2009 0:17	xCO2_SW	327.6817191	3	likely bad CO2 sw due to change in equil pump pressure
4/15/2009 0:17	xCO2_SW	352.2418428	3	likely bad CO2 sw due to change in equil pump pressure
4/15/2009 3:17	xCO2_SW	354.7518946	3	likely bad CO2 sw due to change in equil pump pressure
4/15/2009 6:17	xCO2_SW	359.8769424	3	likely bad CO2 sw due to change in equil pump pressure
4/15/2009 9:17	xCO2_SW	341.5547078	3	likely bad CO2 sw due to change in equil pump pressure
4/25/2009 18:17	xCO2_SW	349.2561987	3	likely bad CO2 sw due to change in equil pump pressure
4/25/2009 21:17	xCO2_SW	345.0606216	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 0:17	xCO2_SW	338.7780534	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 3:17	xCO2_SW	353.0767505	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 6:17	xCO2_SW	342.4862904	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 9:17	xCO2_SW	346.2047292	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 12:17	xCO2_SW	364.2865013	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 18:17	xCO2_SW	331.7554008	3	likely bad CO2 sw due to change in equil pump pressure
4/26/2009 21:17	xCO2_SW	328.6205911	3	likely bad CO2 sw due to change in equil pump pressure
4/27/2009 0:17	xCO2_SW	327.7131242	3	likely bad CO2 sw due to change in equil pump pressure
4/28/2009 15:17	xCO2_Air	395.77773	3	CO2 data submitted was adjusted by - 5 ppm b/c span calibration was off as predicted by change in Licor temperature
4/28/2009 15:17	xCO2_SW	322.792402	3	CO2 data submitted was adjusted by - 5 ppm b/c span calibration was off as predicted by change in Licor temperature
5/1/2009 0:17	xCO2_SW	323.9450254	4	likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 3:17	xCO2_SW	406.9012383	4	likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)

5/1/2009 6:17 xCO2_SW 518.7654984 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 9:17 xCO2_SW 577.5723219 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 12:17 xCO2_SW 361.5941088 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 15:17 xCO2_SW 455.1110064 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 18:17 xCO2_SW 531.4967197 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/1/2009 21:17 xCO2_SW 535.9925637 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 0:17 xCO2_SW 371.0193229 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 3:17 xCO2_SW 413.8909733 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 6:17 xCO2_SW 486.8027747 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 9:17 xCO2_SW 340.3468567 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 12:17 xCO2_SW 325.5712166 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 15:17 xCO2_SW 380.7649056 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 18:17 xCO2_SW 443.9489189 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/2/2009 21:17 xCO2_SW 504.217246 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/3/2009 0:17 xCO2_SW 575.499905 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/3/2009 3:17 xCO2_SW 649.5807837 4 likely bad CO2 sw due to change in equil pump pressure and other potential issues with the buoy (SST and RH on Met package both die on April 29th)
5/29/2009 15:17 xCO2_SW 341.3874303 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/29/2009 18:17 xCO2_SW 384.9622219 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/29/2009 21:17 xCO2_SW 393.6179901 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 0:17 xCO2_SW 384.2674283 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 3:17 xCO2_SW 459.6746367 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 6:17 xCO2_SW 490.2854804 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 9:17 xCO2_SW 462.1375663 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 12:17 xCO2_SW 458.0559079 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 15:17 xCO2_SW 460.6399259 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 18:17 xCO2_SW 367.6567411 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/30/2009 21:17 xCO2_SW 464.0457856 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 0:17 xCO2_SW 536.3891449 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 3:17 xCO2_SW 601.01948 4 likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease

5/31/2009 6:17	xCO2_SW	659.57758	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 9:17	xCO2_SW	675.9563393	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 12:17	xCO2_SW	702.9681552	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 15:17	xCO2_SW	745.8387509	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 18:17	xCO2_SW	788.0933692	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
5/31/2009 21:17	xCO2_SW	816.9040465	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 0:17	xCO2_SW	845.1314869	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 3:17	xCO2_SW	870.7131652	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 6:17	xCO2_SW	901.046009	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 9:17	xCO2_SW	911.7593125	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 12:17	xCO2_SW	946.4319604	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 15:17	xCO2_SW	984.3959615	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 18:17	xCO2_SW	967.5902048	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/1/2009 21:17	xCO2_SW	863.2082173	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/2/2009 0:17	xCO2_SW	412.4021113	4	likely bad CO2 sw due to change in equil pump pressure and O2 saturation decrease
6/24/2009 9:17	xCO2_SW	357.403199	3	likely bad CO2 sw due to change in equil pump pressure
6/24/2009 12:17	xCO2_SW	356.3567981	3	likely bad CO2 sw due to change in equil pump pressure
6/24/2009 15:17	xCO2_SW	356.9462962	3	likely bad CO2 sw due to change in equil pump pressure
6/24/2009 18:17	xCO2_SW	356.5502759	3	likely bad CO2 sw due to change in equil pump pressure
6/24/2009 21:17	xCO2_SW	356.7993537	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 0:17	xCO2_SW	357.7260683	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 3:17	xCO2_SW	362.5937042	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 6:17	xCO2_SW	365.5763993	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 9:17	xCO2_SW	362.7888005	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 12:17	xCO2_SW	364.9867204	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 15:17	xCO2_SW	365.3479013	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 18:17	xCO2_SW	363.0671946	3	likely bad CO2 sw due to change in equil pump pressure
6/25/2009 21:17	xCO2_SW	359.5729086	3	likely bad CO2 sw due to change in equil pump pressure
6/26/2009 0:17	xCO2_SW	366.8270967	3	likely bad CO2 sw due to change in equil pump pressure

6/26/2009 3:17	xCO2_SW	370.4470158	3	likely bad CO2 sw due to change in equil pump pressure
6/26/2009 6:17	xCO2_SW	370.3473068	3	likely bad CO2 sw due to change in equil pump pressure
6/28/2009 18:17	xCO2_SW	367.95425	3	likely bad CO2 sw due to change in equil pump pressure
6/28/2009 21:17	xCO2_SW	371.5818628	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 0:17	xCO2_SW	373.8654451	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 3:17	xCO2_SW	375.9202563	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 6:17	xCO2_SW	374.221375	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 9:17	xCO2_SW	374.8125997	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 12:17	xCO2_SW	373.1829618	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 15:17	xCO2_SW	369.0370753	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 18:17	xCO2_SW	365.1121714	3	likely bad CO2 sw due to change in equil pump pressure
6/29/2009 21:17	xCO2_SW	364.9177361	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 0:17	xCO2_SW	364.7161613	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 3:17	xCO2_SW	370.8726058	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 6:17	xCO2_SW	367.3455493	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 9:17	xCO2_SW	392.6330408	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 12:17	xCO2_SW	374.9985006	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 15:17	xCO2_SW	367.6655779	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 18:17	xCO2_SW	360.4788067	3	likely bad CO2 sw due to change in equil pump pressure
6/30/2009 21:17	xCO2_SW	361.8204088	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 0:17	xCO2_SW	361.8307748	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 3:17	xCO2_SW	366.1319357	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 6:17	xCO2_SW	366.4140111	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 9:17	xCO2_SW	366.4479348	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 12:17	xCO2_SW	371.9051851	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 15:17	xCO2_SW	373.7124935	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 18:17	xCO2_SW	373.6936821	3	likely bad CO2 sw due to change in equil pump pressure
7/1/2009 21:17	xCO2_SW	372.632927	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 0:17	xCO2_SW	375.4103427	3	likely bad CO2 sw due to change in equil pump pressure

7/2/2009 3:17	xCO2_SW	378.2024882	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 6:17	xCO2_SW	377.4526102	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 9:17	xCO2_SW	374.5592673	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 12:17	xCO2_SW	374.4326979	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 15:17	xCO2_SW	375.6462648	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 18:17	xCO2_SW	380.9221659	3	likely bad CO2 sw due to change in equil pump pressure
7/2/2009 21:17	xCO2_SW	369.9141272	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 0:17	xCO2_SW	372.0524464	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 3:17	xCO2_SW	374.8499232	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 6:17	xCO2_SW	376.7034485	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 9:17	xCO2_SW	374.9604482	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 12:17	xCO2_SW	373.1469867	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 15:17	xCO2_SW	375.0923969	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 18:17	xCO2_SW	373.5290194	3	likely bad CO2 sw due to change in equil pump pressure
7/3/2009 21:17	xCO2_SW	373.2727195	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 0:17	xCO2_SW	373.7096134	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 3:17	xCO2_SW	378.8591694	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 6:17	xCO2_SW	377.5770587	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 9:17	xCO2_SW	376.5032558	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 12:17	xCO2_SW	378.64379	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 15:17	xCO2_SW	378.3039087	3	likely bad CO2 sw due to change in equil pump pressure
7/4/2009 18:17	xCO2_SW	374.8684181	3	likely bad CO2 sw due to change in equil pump pressure
7/31/2009 9:17	xCO2_SW	366.79428	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
7/31/2009 9:17	xCO2_Air	350.4284638	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
7/31/2009 12:17	xCO2_SW	372.1470235	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
7/31/2009 12:17	xCO2_Air	350.079243	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
8/1/2009 3:17	xCO2_SW	379.6208505	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
8/1/2009 3:17	xCO2_Air	351.2216715	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
8/3/2009 12:17	xCO2_SW	448.3381804	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off

8/3/2009 12:17	xCO2_Air	427.393284	4	flagged by QC and Licor coefficients and calibrations in diagnostics are off
8/15/2009 9:17	xCO2_SW	416.3270174	4	flagged by QC, Licor coefficients and calibrations in diagnostics are off, and RH standard deviations are high
8/15/2009 9:17	xCO2_Air	389.7982536	4	flagged by QC, Licor coefficients and calibrations in diagnostics are off, and RH standard deviations are high